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EXAMINER
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TRUONG, CAM Y T

ART UNIT	PAPER NUMBER
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2169

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02/11/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/961,131	FERRARI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Cam Y T. Truong	2169	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 94-138 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 94-138 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/16/2009 &amp; 8/21/2008</u> .                               | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Applicant has amended claims 94, 109-124 and 135 in the amendment filed on 11/24/2008.

Claims 94-138 are pending in this Office Action.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 94-138 have been considered but are moot in view of the new ground(s) of rejection.

Claim 135 is amended; thus, the objects for claims are withdrawn.

Claims 109-123 are amended; thus, the 101 rejection to claims is withdrawn.

However, specification is objected because the term "A computer-readable storage medium" is not defined in the specification.

Applicant argued that Vora does not teach "combining refinement options as opposed to simple combining text".

In response to applicant's argument, this limitation is not in claims. However, Vora teaches the combining search results that are selected by a user for viewing documents belong to search results (figs. 7A, 8, 9-12, col. 6, lines 60-67; col. 7, lines 1-5). As shown in figs. 9-12, a list of available information sources are retrieved from servers are displayed to a user, the user can select any available information sources for searching document within those available information sources (col. 17, lines 32-40, col. 18, lines 3-10). The combining search results are represented as refinement options.

Applicant argued that Vora does not explicitly teach the claimed limitations “producing a plurality of refinement options by, in each of a plurality of servers; combining the plurality of refinement options to form combined refinement options; and providing the combined refinement options”.

Examiner respectfully disagrees. Vora teaches receiving search requests from server 9 and executing search requests by search the data and responds to the server 9 with the results of the search requests. The server 9 combines the results of such remote searches with the results of the search performed by the server 9. The combined search results are displayed to a user of a client system via one window (col. 6, lines 60-67; col. 7, lines 1-5). As shown in figs. 9-12, a list of available information sources are retrieved from servers are displayed to a user, the user can select any available information sources for searching document within those available information sources (col. 17, lines 32-40, col. 18, lines 3-10). The combining search results are represented as refinement options.

As discussed above Vora teaches the claimed limitation “producing a plurality of refinement options by, in each of a plurality of servers; combining the plurality of refinement options to form combined refinement options; and providing the combined refinement options”.

***Information Disclosure Statement***

3. The IDS filed on 1/16/2009 is not considered because:

On page 2 cited #1 (Final Office action mailed on January 7, 2009 for US patent Application NO 11/268,868 filed November 8, 2005) are not contained documents or references that are included in the Office action mailed on 1/7/2009 for US patent Application No. 11/268868. For this situation, applicant should provides all references that are included in the Office action mailed on 1/7/2009 for US patent Application No. 11/268868.

On page 3, cited #3-6 have similar situation as discussed above. For these situations, applicant should provide all references that are included in all of office actions mailed on 7/23/2008, 4/15/2008, 7/23/2008.

***Specification***

3. The specification is objected to under 37 CFR 1.75 (see MPEP 608.01(o)) because the phrase "computer readable storage medium" in claims 109-123 are not defined meaning of the medium in the specification.
4. **Remark:** the term "server" in claims 124-138 is interpreted as a hardware device according to fig. 20 of the specification.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 94-99, 101, 103-105, 109-114, 116, 118-119, 120, 124-129, 131, 133-137 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wical (US 6460034) in view of Vora (US 5819273) and Lamburt et al (or hereinafter "Lamburt") (US 6374241).

As to claim 94, Wical teaches the claimed limitations:

"receiving a user selection of an expression of attribute-value pairs" as receiving user selection of a category computer networking as an expression of attribute-value pairs (col. 25, lines 5-15);

"processing the expression of attribute-value pairs to produce at least one refinement option" as processing the user's selection of a category computer networking to displaying a plurality of categories related to computer networking categories (col. 25, lines 5-30, figs. 11a-11b);

“determining a navigation state associated with the expression of attribute-value pairs” as (figs. 3&4);

“providing materials associated with the navigation state” as providing sub-categories for which documents have been classified (fig. 10b, col. 25, lines 5-15).

Wical does not explicitly teach the claimed limitations “producing a plurality of refinement options by, in each of a plurality of servers; combining the plurality of refinement options to form combined refinement options; and providing the combined refinement options; the combined refinement options including at least one refinement navigation state”.

Vora teaches receiving search requests from server 9 and executing search requests by search the data and responds to the server 9 with the results of the search requests. The server 9 combines the results of such remote searches with the results of the search performed by the server 9. The combined search results are displayed to a user of a client system via one window (col. 6, lines 60-67; col. 7, lines 1-5). As shown in figs. 9-12, a list of available information sources are retrieved from servers are displayed to a user, the user can select any available information sources for searching document within those available information sources (col. 17, lines 32-40, col. 18, lines 3-10). The combining search results are represented as refinement options.

Lambert teaches displaying refinement options including plurality of categories that matched to user query, a user can select one of matched categories to further

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search (figs. 43-44, col. 36, lines 29-60). Each matched category of the matched categories is presented as at least one refinement navigation state.

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Vora's teaching of combining search results from many server and displaying search results to a user and Lamburt's teaching of the refinement strategies including at least one refinement navigation state to Wical's system in order to provide searching databases stored in servers parallel for obtaining accurate information of resources to save time searching data having similar concept and further to guide faster the user into a relevant refinement by skipping intermediate categories in the hierarchy of categories.

As to claims 95 and 110, Wical teaches the claimed limitation "identifying at least two related terms among the plurality of refinement options, and computing, for the at least two related terms, a least common ancestor of the related terms" as (col. 11, lines 15-55).

As to claims 96 and 111, Wical teaches the claimed limitations "wherein the least common ancestor is defined by the partial order among the related terms" as (col. 11, lines 35-65).

As to claims 97 and 112, Wical teaches the claimed limitation "wherein computing the least common ancestor of the related terms comprises storing all non-leaf terms on at least one server" as (col. 32, lines 1-15, col. 9, lines 35-50).



As to claims 98 and 113, Wical teaches the claimed limitation “wherein the at least one server is a master server” as (col. 32, lines 1-15, col. 9, lines 35-50).

As to claims 99, 114, 129, Wical and Vora disclose the claimed limitation “wherein the plurality of servers are slave servers” as servers 63 and server 55 are slave servers (Vora, fig. 1) and wherein “combining the plurality of refinement options” as Search results are combined (Vora, col. 6, lines 60-67), “includes storing a plurality of the attribute-value pairs on a master server” as (Wical fig. 1).

As to claim 101, 116, 131, Wical and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation “wherein combining the plurality of refinement options is performed whether the plurality of refinement options are conjunctive, disjunctive, or negational” as (col. 6, lines 50-67; col. 7, lines 1-10).

As to claims 103 and 118, Wical and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation “wherein the expression of attribute-value pairs is processed on a different partition of a collection of materials for different ones of the plurality of servers” as (figs. 9&10, col. 8, lines 5-30).

As to claims 104, 119 and 134, Wical teaches the claimed limitation “storing the attribute-value pairs in a graph data structure including nodes and edges between nodes, the nodes representing navigation states, the edges representing transitions” as (figs. 8B, 9A, 4).

As to claim 109, Wical teaches a computer-readable storage medium storing computer-executable instructions that, when executed by a computer, cause the computer to perform a method for presenting materials corresponding to a navigation state (fig. 10A, col. 31, lines 35-57), the method comprising:

“receiving a user selection of an expression of attribute-value pairs” as receiving user selection of a category computer networking as an expression of attribute-value pairs (col. 25, lines 5-15);

“processing the expression of attribute-value pairs to produce at least one refinement option” as processing the user's selection of a category computer networking to displaying a plurality of categories related to computer networking categories (col. 25, lines 5-30, figs. 11a-11b);

“determining a navigation state associated with the expression of attribute-value pairs” as (figs. 3&4);

“providing materials associated with the navigation state” as providing sub-categories for which documents have been classified (fig. 10b, col. 25, lines 5-15).

Wical does not explicitly teach the claimed limitations “producing a plurality of refinement options by, in each of a plurality of servers; combining the plurality of refinement options to form combined refinement options; and providing the combined refinement options; the combined refinement options including at least one refinement navigation state”.

Vora teaches receiving search requests from server 9 and executing search request by search the data and responds to the server 9 with the results of the search requests. The server 9 combines the results of such remote searches with the results of the search performed by the server 9. The combined search results are displayed to a user of a client system via one window (col. 6, lines 60-67; col. 7, lines 1-5). As shown in figs. 9-12, a list of available information sources are retrieved from servers are displayed to a user, the user can select any available information sources for searching document within those available information sources (col. 17, lines 32-40, col. 18, lines 3-10). The combining search results are represented as refinement options.

Lambert teaches displaying refinement options including plurality of categories that matched to user query, a user can select one of the matched categories to further search (figs. 43-44, col. 36, lines 29-60). Each matched category of the matched categories is presented as at least one refinement navigation state.

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Vora's teaching of combining search results from many server and displaying search results to a user and Lambert's teaching of the refinement strategies including at least one refinement navigation state to Wical's system in order to provide searching databases stored in servers parallel for obtaining accurate information of resources to save time searching data having similar concept and further to guide faster the user into a relevant refinement by skipping intermediate categories in the hierarchy of categories.

As to claim 124, Wical teaches the claimed limitations:

“at least one server that each receive a user selection of an expression of attribute-value pairs” as receiving user selection of a category computer networking as an expression of attribute-value pairs (col. 25, lines 5-15);

“produce at least one refinement option by processing the expression of attribute-value pairs” as processing the user's selection of a category computer networking to displaying a plurality of categories related to computer networking categories (col. 25, lines 5-30, figs. 11a-11b);

“receives a user selection of an expression of attribute-value pairs” as (col. 25, lines 5-15);

“produces at least one refinement option by processing the expression of attribute-value pairs” as processing the user's selection of a category computer networking to displaying a plurality of categories related to computer networking categories (col. 25, lines 5-30, figs. 11a-11b);

“determines a navigation state associated with the expression of attribute-value pairs” as (figs. 3&4);

“providing materials associated with the navigation state” as providing sub-categories for which documents have been classified (fig. 10b, col. 25, lines 5-15).

Wical does not explicitly teach the claimed limitation “at least one other server that; wherein the at least one refinement option produced by the at least one server and the at least one refinement option produced by the at least one other served form a

plurality of refinement options; combines the plurality of refinement options to form combined refinement options; provides the combined refinement options; the combined refinement options including at least one refinement navigation state”.

Vora teaches receiving search requests from server 9 and executing search requests by search the data and responds to the server 9 with the results of the search requests. The server 9 combines the results of such remote searches with the results of the search performed by the server 9. The combined search results are displayed to a user of a client system via one window (col. 6, lines 60-67; col. 7, lines 1-5).

As shown in figs. 9-12, a list of available information sources are retrieved from servers are displayed to a user, the user can select any available information sources for searching document within those available information sources (col. 17, lines 32-40, col. 18, lines 3-10). The combining search results are represented as refinement options.

Lamburt teaches displaying refinement options including plurality of categories that matched to user query, a user can select one of the matched categories to further search (figs. 43-44, col. 36, lines 29-60). Each matched category of the matched categories is presented as at least one refinement navigation state.

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Vora's teaching of combining search results from many server and displaying search results to a user and Lamburt's teaching of the refinement strategies including at least one refinement navigation state to Wical's

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system in order to provide searching databases stored in servers parallel for obtaining accurate information of resources to save time searching data having similar concept and further to guide faster the user into a relevant refinement by skipping intermediate categories in the hierarchy of categories.

As to claim 125, Wical teaches the claimed limitation "wherein at least one of the at least one server and the at least one other server also identifies at least two related terms among the plurality of refinement options, and computing , for the least two related terms, at least common ancestor of the related terms" as (col. 11, lines 35-65).

As to claim 126, Wical teaches the claimed limitation "wherein the least common ancestor is defined by the partial order among the related terms" as (col. 11, lines 35-65).

As to claim 127, Wical teaches the claimed limitation "wherein computing the least common ancestor of the related terms comprises storing all non-leaf terms the at least one of the at least one server and the at least one other server" as (col. 32, lines 1-15, col. 9, lines 35-50).

As to claim 128, Wical teaches the claimed limitation "wherein the at least one of the at least one server and the at least one other server is a master server" as (col. 32, lines 1-15, col. 9, lines 35-50).

As to claim 133, Wical teaches the claimed limitation "wherein the expression of attribute-value pairs is processed on a different partition of a collection of materials for

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different ones of the at least one server and the at least one other server" as (figs. 9&10, col. 8, lines 5-30).

As to claims 105 and 120, Wical and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation "partitioning the materials and other materials among the plurality of servers" as ( Vora, col. 6, lines 10-35).

As to claim 135, Wical and Vora teaches the claimed limitation "wherein the materials and other materials are partitioned among the at least one server and the at least one other server" as (col. 6, lines 10-35, Vora).

As to claim 136, Wical and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation "wherein the materials and other materials are partitioned among the at least one server and the at least one other server" as (Vora, col. 6, lines 10-35).

As to claim 137, Wical and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation "at least one of the at least one other server is a root server and acts as a master server; the at least one server includes a plurality of servers, and the plurality of servers act as slave servers; the master server distributes a request for a navigation state on to the slave servers; the slave servers compute navigation states for those requests and return the results to the master server; and the master server combines the results from the plurality of slave servers to obtain a navigation state corresponding to the request" as (col. 6, lines 60-67; col. 7, lines 1-10).

7. Claims 100, 115, 130 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wical (US 6460034) in view of Vora (US 5819273) and Lamburt et al (or hereinafter "Lamburt") (US 6374241) and further in view of Horowitz et al (or hereinafter "Horowitz") (US 6236987).

As to claims 100, 115, 130, Wical does not explicitly teach the claimed limitation "wherein the combining comprises taking the union of the plurality of refinement options, computing the set of ancestors for each of the plurality of refinement options, computing the intersection of all of the sets of ancestors, and computing the combined refinement options from the minimal terms in the intersection".

Horowitz teaches all parents and grandparent topics of the selected topic are added to a set of candidate supertopics. From this candidate set, each possible supertopi combination (intersection of topics is rated) and supertopics and subtopics allows the user to specify as query on the document collection any arbitrary intersection of topics in the topic hierarchy, without the topic hierarchy having to be pre-structured with every possible topic intersection (col. 4, lines 15-25; col. 6, lines 20-60).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Horowitz's teaching to Wical's system in order to allows the user to specify as query on the document collection any arbitrary intersection of topics in the topic hierarchy, without the topic hierarchy having to be pre-structured with every possible topic intersection.



8. Claims 102, 117 and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wical (US 6460034) in view of Vora (US 5819273) and Lamburt et al (or hereinafter "Lamburt") (US 6374241) and further in view of Afek (US 6633860).

As to claims 102, 117 and 132, Wical does not explicitly teach the claimed limitation "wherein combining the plurality of refinement options comprises combining the plurality of refinement options as a disjoint union".

Vora teaches combining search results (col. 6, lines 60-67). Afek teaches a disjoint union (col. 4, lines 1-5).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Vora's teaching of combining search results and Afek's teaching of disjoint union to Wical's system in order to provide a best match results corresponding to user's query.

9. Claims 106-107 and 121-122 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wical (US 6460034) in view of Vora (US 5819273) and Lamburt et al (or hereinafter "Lamburt") (US 6374241) and further in view of Rivette et al (Or hereinafter "Rivette") (US 5991751).

As to claims 106, 121, Wical does not explicitly teach the claimed limitation "nesting the plurality of servers hierarchically".

Rivette teaches nesting servers hierarchically (fig. 5).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Rivette's teaching of nesting servers hierarchically to Wical's system in order to improve search data in a large database quickly by navigating data in hierarchy structure.

As to claims 107 and 122, Horowitz and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches "wherein a root server of the plurality of servers acts as a master server and some of the plurality of servers act as slave servers, further comprising the master server distributing a request for a navigation state on to a plurality of slave servers, the slave servers computing navigation states for those requests and returning the results to the master server, and the master server combining the results from the slave servers to obtain a navigation state corresponding to the request" as (col. 6, lines 60-67; col. 7, lines 1-10).

10. Claims 108, 123, 138 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wical (US 6460034) in view of Vora (US 5819273) and Lamburt et al (or hereinafter "Lamburt") (US 6374241) and further in view of Maddalozzo, Jr. et al (or hereinafter "Maddalozzo") (US 6633316).

As to claims 108, 123, 138, Wical does not explicitly teach the claimed limitation "storing the navigation state in a cache".

Maddalozzo teaches storing navigation path in a cache (col. 10, lines 44-50).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Maddalozzo's teaching of storing navigation path in a cache to Wical's system in order to track the navigation of a previous session efficiently.

11. Claims 94-100, 101, 103-105, 107, 109-116, 118-119, 120, 122, 124-130, 131, 133-137 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz et al (or hereinafter "Horowitz") (US 6236987) in view of Vora (US 5819273) and Lamburt et al (or hereinafter "Lamburt") (US 6374241).

As to claim 94, Horowitz teaches the claimed limitations:

"receiving a user selection of an expression of attribute-value pairs" as receiving user selection of a category as an expression of attribute-value pairs (col. 11, lines 25-40);

"processing the expression of attribute-value pairs to produce at least one refinement option" as processing the user's selection of a category to displaying a plurality of categories related to computer networking categories (col. 11, lines 25-67);

"determining a navigation state associated with the expression of attribute-value pairs" as (figs. 3&4);

"providing materials associated with the navigation state" as providing sub-categories for which documents have been classified (col. 12, lines 25-45).

Horowitz does not explicitly teach the claimed limitations “producing a plurality of refinement options by, in each of a plurality of servers; combining the plurality of refinement options to form combined refinement options; and providing the combined refinement options; the combined refinement options including at least one refinement navigation state”.

Vora teaches receiving search requests from server 9 and executing search requests by search the data and responds to the server 9 with the results of the search requests. The server 9 combines the results of such remote searches with the results of the search performed by the server 9. The combined search results are displayed to a user of a client system via one window (col. 6, lines 60-67; col. 7, lines 1-5).

As shown in figs. 9-12, a list of available information sources are retrieved from servers are displayed to a user, the user can select any available information sources for searching document within those available information sources (col. 17, lines 32-40, col. 18, lines 3-10). The combining search results are represented as refinement options.

Lambert teaches displaying refinement options including plurality of categories that matched to user query, a user can select one of the matched categories to further search (figs. 43-44, col. 36, lines 29-60). Each matched category of the matched categories is presented as at least one refinement navigation state.

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Vora's teaching of combining search results from

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many server and displaying search results to a user and Lamburt's teaching of the refinement strategies including at least one refinement navigation state to Horowitz's system in order to provide searching databases stored in servers parallel for obtaining accurate information of resources to save time searching data having similar concept and further to guide faster the user into a relevant refinement by skipping intermediate categories in the hierarchy of categories.

As to claims 95 and 110, Horowitz teaches the claimed limitation "identifying at least two related terms among the plurality of refinement options, and computing, for the at least two related terms, a least common ancestor of the related terms" as (col. 11, lines 5-25).

As to claims 96 and 111, Horowitz teaches the claimed limitations "wherein the least common ancestor is defined by the partial order among the related terms" as (col. 14, lines 10-35).

As to claims 97 and 112, Horowitz teaches the claimed limitation "wherein computing the least common ancestor of the related terms comprises storing all non-leaf terms on at least one server" as (figs. 1&2).

As to claims 98 and 113, Horowitz teaches the claimed limitation "wherein the at least one server is a master server" as (col. 9, lines 1-33).

As to claims 99, 114, 129, Horowitz and Vora disclose the claimed limitation “wherein the plurality of servers are slave servers” as servers 63 and server 55 are slave servers (Vora, fig. 1) and wherein “combining the plurality of refinement options” as Search results are combined (Vora, col. 6, lines 60-67), “includes storing a plurality of the attribute-value pairs on a master server” as (Horowitz, col. 8, lines 1-33).

As to claims 100, 115, 130, Horowitz teaches the claimed limitation “wherein the combining comprises taking the union of the plurality of refinement options, computing the set of ancestors for each of the plurality of refinement options, computing the intersection of all of the sets of ancestors, and computing the combined refinement options from the minimal terms in the intersection” as all parents and grandparent topics of the selected topic are added to a set of candidate supertopics. From this candidate set, each possible supertopi combination (intersection of topics is rated) and supertopics and subtopics allows the user to specify as query on the document collection any arbitrary intersection of topics in the topic hierarchy, without the topic hierarchy having to be pre-structured with every possible topic intersection (col. 4, lines 15-25; col. 6, lines 20-60).

As to claim 101, 116, 131, Horowitz and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation “wherein combining the plurality of refinement options is performed whether the plurality of refinement options are conjunctive, disjunctive, or negational” as (col. 6, lines 50-67; col. 7, lines 1-10).

As to claim 109, Horowitz teaches a computer-readable storage medium storing computer-executable instructions that, when executed by a computer, cause the computer to perform a method for presenting materials corresponding to a navigation state (fig. 1, col. 8, lines 1-20), the method comprising:

“receiving a user selection of an expression of attribute-value pairs” as receiving user selection of a category as an expression of attribute-value pairs (col. 11, lines 25-40);

“processing the expression of attribute-value pairs to produce at least one refinement option” as processing the user’s selection of a category to displaying a plurality of categories related to computer networking categories (col. 11, lines 25-67);

“determining a navigation state associated with the expression of attribute-value pairs” as (figs. 3&4);

“providing materials associated with the navigation state” as providing sub-categories for which documents have been classified (col. 12, lines 25-45).

Horowitz does not explicitly teach the claimed limitations “producing a plurality of refinement options by, in each of a plurality of servers; combining the plurality of refinement options to form combined refinement options; and providing the combined refinement options; the combined refinement options including at least one refinement navigation state”.

Vora teaches receiving search requests from server 9 and executing search requests by search the data and responds to the server 9 with the results of the search requests. The server 9 combines the results of such remote searches with the results of the search performed by the server 9. The combined search results are displayed to a user of a client system via one window (col. 6, lines 60-67; col. 7, lines 1-5).

As shown in figs. 9-12, a list of available information sources are retrieved from servers are displayed to a user, the user can select any available information sources for searching document within those available information sources (col. 17, lines 32-40, col. 18, lines 3-10). The combining search results are represented as refinement options.

Lamburt teaches displaying refinement options including plurality of categories that matched to user query, a user can select one of the matched categories to further search (figs. 43-44, col. 36, lines 29-60). Each matched category of the matched categories is presented as at least one refinement navigation state.

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Vora's teaching of combining search results from many server and displaying search results to a user and Lamburt's teaching of the refinement strategies including at least one refinement navigation state to Horowitz 's system in order to provide searching databases stored in servers parallel for obtaining accurate information of resources to save time searching data having similar concept



and further to guide faster the user into a relevant refinement by skipping intermediate categories in the hierarchy of categories.

As to claim 124, Horowitz teaches the claimed limitations:

“at least one server that each receive a user selection of an expression of attribute-value pairs” as receiving user selection of a category as an expression of attribute-value pairs (col. 11, lines 25-40);

“produce at least one refinement option by processing the expression of attribute-value pairs” as processing the user's selection of a category to displaying a plurality of categories related to selected category (col. 11, lines 25-67);

“at least one other server that: receives a user selection of an expression of attribute-value pairs” as (col. 11, lines 25-40);

“produces at least one refinement option by processing the expression of attribute-value pairs” as processing the user's selection of a category computer networking to displaying a plurality of categories related to computer networking categories (col. 12, lines 25-45);

“determines a navigation state associated with the expression of attribute-value pairs” as (figs. 3&4);

“providing materials associated with the navigation state” as providing sub-categories for which documents have been classified (col. 12, lines 25-45).

Horowitz does not explicitly teach the claimed limitation “wherein the at least one refinement option produced by the at least one server and the at least one refinement option produced by the at least one other served form a plurality of refinement options; combines the plurality of refinement options to form combined refinement options; provides the combined refinement options; the combined refinement options including at least one refinement navigation state”.

Vora teaches receiving search requests from server 9 and executing search requests by search the data and responds to the server 9 with the results of the search requests. The server 9 combines the results of such remote searches with the results of the search performed by the server 9. The combined search results are displayed to a user of a client system via one window (col. 6, lines 60-67; col. 7, lines 1-5).

As shown in figs. 9-12, a list of available information sources are retrieved from servers are displayed to a user, the user can select any available information sources for searching document within those available information sources (col. 17, lines 32-40, col. 18, lines 3-10). The combining search results are represented as refinement options.

Lambert teaches displaying refinement options including plurality of categories that matched to user query, a user can select one of the matched categories to further search (figs. 43-44, col. 36, lines 29-60). Each matched category of the matched categories is presented as at least one refinement navigation state.

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Vora's teaching of combining search results from many server and displaying search results to a user and Lamburt's teaching of the refinement strategies including at least one refinement navigation state to Horowitz 's system in order to provide searching databases stored in servers parallel for obtaining accurate information of resources to save time searching data having similar concept and further to guide faster the user into a relevant refinement by skipping intermediate categories in the hierarchy of categories.

As to claims 103 and 118, Horowitz and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation "wherein the expression of attribute-value pairs is processed on a different partition of a collection of materials for different ones of the plurality of servers" as (figs. 9&10, col. 8, lines 5-30).

As to claims 104, 119 and 134, Horowitz teaches the claimed limitation "storing the attribute-value pairs in a graph data structure including nodes and edges between nodes, the nodes representing navigation states, the edges representing transitions" as (figs. 8B, 9A, 4).

As to claim 125, Horowitz teaches the claimed limitation "wherein at least one of the at least one server and the at least one other server also identifies at least two related terms among the plurality of refinement options, and computing , for the least

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two related terms, at least common ancestor of the related terms" as (col. 11, lines 35-65).

As to claim 126, Horowitz teaches the claimed limitation "wherein the least common ancestor is defined by the partial order among the related terms" as (col. 11, lines 35-65).

As to claim 127, Horowitz teaches the claimed limitation "wherein computing the least common ancestor of the related terms comprises storing all non-leaf terms the at least one of the at least one server and the at least one other server" as (col. 32, lines 1-15, col. 9, lines 35-50).

As to claim 128, Horowitz teaches the claimed limitation "wherein the at least one of the at least one server and the at least one other server is a master server" as (col. 32, lines 1-15, col. 9, lines 35-50).

As to claim 133, Horowitz teaches the claimed limitation "wherein the expression of attribute-value pairs is processed on a different partition of a collection of materials for different ones of the at least one server and the at least one other server" as (figs. 9&10, col. 8, lines 5-30).

As to claims 105 and 120, Horowitz and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation "partitioning the materials and other materials among the plurality of servers" as ( Vora, col. 6, lines 10-35).

As to claim 135, Horowitz and Vora teaches the claimed limitation "wherein the materials and other materials are partitioned among the at least one server and the at least one other server" as (col. 6, lines 10-35, Vora).

As to claim 136, Horowitz and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation "wherein the materials and other materials are partitioned among the at least one server and the at least one other server" as (Vora, col. 6, lines 10-35).

As to claim 137, Horowitz and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches the claimed limitation "at least one of the at least one other server is a root server and acts as a master server; the at least one server includes a plurality of servers, and the plurality of servers act as slave servers; the master server distributes a request for a navigation state on to the slave servers; the slave servers compute navigation states for those requests and return the results to the master server; and the master server combines the results from the plurality of slave servers to obtain a navigation state corresponding to the request" as (col. 6, lines 60-67; col. 7, lines 1-10).

12. Claims 102, 117 and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz in view of Vora (US 5819273) and Lamburt et al (or hereinafter "Lamburt") (US 6374241) and further in view of Afek (US 6633860).

As to claims 102, 117 and 132, Horowitz does not explicitly teach the claimed limitation “wherein combining the plurality of refinement options comprises combining the plurality of refinement options as a disjoint union”.

Vora teaches combining search results (col. 6, lines 60-67). Afek teaches a disjoint union (col. 4, lines 1-5).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Vora's teaching of combining search results and Afek's teaching of disjoint union to Horowitz's system in order to provide a best match results corresponding to user's query.

13. Claims 106-107, 121-122 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz in view of Vora (US 5819273) and Lamburt et al (or hereinafter “Lamburt”) (US 6374241) and further in view of Rivette et al (Or hereinafter “Rivette”) (US 5991751).

As to claims 106, 121, Horowitz does not explicitly teach the claimed limitation “nesting the plurality of servers hierarchically”.

Rivette teaches nesting servers hierarchically (fig. 5).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Rivette's teaching of nesting servers hierarchically to Horowitz's system in order to improve search data in a large database quickly by navigating data in hierarchy structure.

As to claims 107 and 122, Horowitz and Vora teaches the claimed limitation subject matter in claim 94, Vora further teaches “wherein a root server of the plurality of servers acts as a master server and some of the plurality of servers act as slave servers, furthercomprising the master server distributing a request for a navigation state on to a plurality of slave servers, the slave servers computing navigation states for those requests and returning the results to the master server, and the master server combining the results from the slave servers to obtain a navigation state corresponding to the request” as (col. 6, lines 60-67; col. 7, lines 1-10).

14. Claims 108, 123, 138 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz in view of Vora (US 5819273) and Lamburt et al (or hereinafter “Lamburt”) (US 6374241) and further in view of Maddalozzo, Jr. et al (or hereinafter “Maddalozzo”) (US 6633316).

As to claims 108, 123, 138, Horowitz does not explicitly teach the claimed limitation "storing the navigation state in a cache".

Maddalozzo teaches storing navigation path in a cache (col. 10, lines 44-50).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Maddalozzo's teaching of storing navigation path in a cache to Horowitz's system in order to track the navigation of a previous session efficiently.

***Conclusion***

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



**Contact Information**

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cam Y T. Truong whose telephone number is (571) 272-4042. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tony Mahmoudi can be reached on (571) 272-4078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cam Y Truong/  
Primary Examiner, Art Unit 2169